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DEVELOPMENT AND TRANSFER OF TECHNOLOGIES

Report of the expert meeting on methodologies for technology needs assessments Seoul, Republic of Korea, 23–25 April 2002

Note by the Chairman

CONTENTS

			Paragraphs	Page
I.	INTRODUCTION		1- 5	2
	A.	Mandate	1	2
	B.	Scope of the note	2- 5	2
II.	REPORT OF THE EXPERT MEETING		6-23	2
	A.	Introduction	6-12	2
	B.	Concepts, tools and experiences in assessing technology needs	13-15	4
	C.	Technology needs assessment process	16-19	5
	D.	Barriers to the implementation of technology needs assessments	20	6
	E.	Outcome of the working groups: conclusions and suggested possible next steps	21-23	7

I. INTRODUCTION

A. Mandate

1. By its decision 4/CP.7, the Conference of the Parties (COP) requested the Chairman of the Subsidiary Body for Scientific and Technological Advice (SBSTA), with the assistance of the secretariat, in consultation with the Expert Group on Technology Transfer (EGTT), to organize a meeting with representatives from governments, experts drawn from the UNFCCC roster of experts, and representatives from relevant international organizations, to identify methodologies needed to undertake technology needs assessments and to report their findings to the SBSTA at its sixteenth session (FCCC/CP/2001/13/Add.1, annex, para.7).

B. Scope of the note

2. This note presents the report of the expert meeting on methodologies for technology needs assessments, held in Seoul, Republic of Korea, in the period from 23 to 25 April 2002. It contains a summary of the meeting presentations and the panel and general discussions, as well as the outcomes of three parallel working groups. The meeting was organized by the secretariat in collaboration with the United Nations Development Programme (UNDP) and with the kind assistance of the Korean Energy Management Corporation (KEMCO) of the Republic of Korea.

3. This note should be read in conjunction with the report of the expert workshop on technology information, held in Tsinghua University, Beijing, China, from 18 to 19 April 2002 (FCCC/SBSTA/2002/INF.6).

4. The expert meeting generated a total of 25 technical presentations, 10 country case studies and fruitful discussions at the plenary and the three working groups. All presentations are available for reference in hard copy and on CD-ROM, as well as through TT: CLEAR on the secretariat's web site.[1]

5. The report of the expert meeting was prepared by the Chairman of the SBSTA, with the assistance of the secretariat, in consultation with the Chairman and Vice-Chairman of the Expert Group on Technology Transfer (EGTT). It takes into account presentations by country representatives and experts, and discussions at the meeting. Several ideas on possible methodologies including next steps were suggested in the working groups and the final session of the meeting. With this approach, the suggestions presented in this report are to be viewed as a list of thoughts and ideas that can serve as input to further discussions and considerations by the SBSTA at its sixteenth session.

II. REPORT OF THE EXPERT MEETING

A. Introduction

6. The agenda of the meeting was designed, in consultation with the Chairman of the SBSTA, the UNDP National Communications Support Programme, the Climate Technology Initiative (CTI) and some members of the EGTT, to address issues related to technology needs assessments and other issues identified in previous regional workshops organized under the consultative process for the transfer of technology.

7. The meeting was attended by 60 participants, including 24 from non-Annex I Parties representing Africa (9), Asia and the Pacific (8), Latin America and the Caribbean (6) and small island States (1). Twenty-one representatives from Annex I Parties also participated in the meeting. Ten intergovernmental organizations were represented and one participant from the private sector also attended.

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[1] http://ttclear.unfccc.int/ttclear/Jsp

8. As co-organizer of the expert meeting, UNDP-Global Environment Facility (GEF) funded the attendance of 11 participants from developing countries and countries with economies in transition. These countries are undertaking their technology needs assessments as part of their climate change enabling activities, funded through the GEF Capacity Building in Priority Areas programme. To assist further the countries in analysing priority technologies, the Global Environment Facility (GEF) unit of UNDP launched a project to develop a handbook for assessing technology needs. The project will involve consultations with Parties and relevant stakeholders, and will facilitate training and capacity-building activities. The handbook is expected to be completed by the end of 2002.

9. The objectives of the meeting were to identify methodologies needed to undertake technology needs assessments and to report the meeting's findings to the SBSTA at its sixteenth session (see paragraph 1 above) as well as to generate and share information on experiences, special situations and needs of countries in different regions and on possible next steps for further consideration by the SBSTA. In particular, the aims of the expert meeting were as follows:

(a) Provide the SBSTA with technical advice on available tools and methodologies in technology needs assessments, taking into consideration:

- The experiences of developing country Parties participating in climate change enabling activities, funded through the GEF Capacity Building in Priority Areas programme;
- Tools and techniques used by bilateral institutions and other international organizations in implementing projects involving technology transfer;
- The need to identify tools and methodologies in needs assessments that would suit the requirements of the Convention;

(b) Identify the different barriers and challenges to conducting technology needs assessments and the means to overcome these barriers;

(c) Discuss the processes and main elements of technology needs assessments consistent with the requirements of Article 4.5 of the Convention;

(d) Recommend to the SBSTA tools, methodologies and processes in assessing technology needs that the Parties may consider in preparing their prioritized needs;

(e) Describe potential follow-up activities after identification of technological needs that may be pursued by the different stakeholders.

10. The secretariat prepared a background paper for the expert meeting.[2] The objectives of the paper were to provide an overview of the concepts of technology needs assessments and methodologies used by different institutions and to discuss various methodological options for assessing technology needs in support of the requirements under the Article 4.5 of the Convention and the framework for meaningful and effective actions to enhance Article 4.5 of the Convention (decision 4/CP.7).

11. In the course of assessing various methodological options in technology needs assessments, the methodology developed by CTI stood out prominently. The technology needs assessment process described in this report was drawn from countries' expert presentations, including from the CTI technology needs assessments methodology.

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[2] A copy may be downloaded at http://ttclear.unfccc.int/ttclear/Jsp

12. This report summarizes the proceedings of the meeting under the following headings:

- Concepts, tools and experiences in assessing technology needs;
- Technology needs assessment process;
- Barriers to the implementation of technology needs assessments;
- Outcome of the working groups: conclusions and suggested possible next steps

B. Concepts, tools and experiences in assessing technology needs

13. The framework for meaningful and effective actions to enhance the implementation of Article 4, paragraph 5, of the Convention defines technology needs assessments as a set of country-driven activities that identify and determine the mitigation and adaptation technology priorities, involving different stakeholders in a consultative process to identify the barriers and measures to address these barriers through sectoral analyses (FCCC/CP/2001/13/Add.1, annex, para.3).

14. The discussion on concepts, tools and methodologies in technology needs assessments was drawn from the experiences of developing countries that are currently conducting needs assessments and from the three methods identified in the background paper prepared by the secretariat. The three sample methods are:

(a) The Climate Technology Initiative methods designed specifically for needs assessments for climate technologies;[3]

(b) The Environmental Technology Assessment developed by the UNEP International Environmental Technology Centre.[4] This tool focuses on enhancing urban environmental management;

(c) The national needs assessments developed by the United Nations Commission on Sustainable Development[5] to define a portfolio of capacity-building actions and technology transfer projects to accelerate the development, adoption and implementation of environmentally sound technologies (ESTs).

15. The participants discussed the different concepts, methodologies and tools on technology needs assessments based on the technical presentations and country experiences. They noted the following general overarching approaches to assessing technology needs:

(a) There are existing methodologies which may serve as a good foundation to build on and adopt in the context of climate change. There is, however, a need to improve these methodologies so as to fit specific national circumstances and to integrate adaptation technologies, particularly in the areas of vulnerability assessments, monitoring and climate modelling. The participants observed that existing methodologies in assessing technologies are specifically designed for greenhouse gas mitigation technologies;

(b) Technology needs assessments should be country-driven and as such, aside from contributing to greenhouse gas emissions abatement and reducing vulnerability to climate change, they should also contribute to the national development objectives such as job creation, poverty eradication and capacity-building, and the broader aims of Agenda 21;

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[3] Methods and Examples for Technology Needs Assessments and Technology Transfer Implementation, CTI, April 2002.

[4] www.unep.or.jp/ietc/supportingtools/enta

[5] E/CN.17/1996/3.

(c) Participation of stakeholders at the outset of the process is crucial to the successful implementation of needs assessments. The experience of some developing countries showed that increased participation of non-governmental organizations, the private sector and academia led to active support and ownership of the identified projects. Active participation of stakeholders also enhances exchange of information and data needed in assessing technologies;

(d) Technology needs assessments is not an end in itself but a part of the technology transfer process, so they should be conducted with clear objectives in mind. Particular attention should be given to the implementation of the action plans defined during the needs assessments to complete the process of technology transfer. The results of needs assessments should be a living document that can be revisited and revised to reflect the latest socio-economic and technological developments;

(e) Technology needs assessments are not only meant to identify technologies for possible donor funding but also to provide multiple benefits at the country level, including the identification of policy gaps leading to improvement of enabling environments, increasing the capacity of local institutions and experts, and raising public awareness of climate change issues.

C. Technology needs assessment process

16. The process of carrying out needs assessments may vary from one country to another due to differences in national circumstances. Case studies show the following common features:

(a) Establishment of criteria: the criteria may be based on market potential, contribution to national development objectives, potential to reduce greenhouse gas emissions, ability to trigger growth in other parts of the economy;

(b) Definition of priority sectors: priority sectors (energy, forestry, agriculture, coastal/marine, etc) and subsectors (industrial, energy efficiency, renewable energy, etc.) are selected and the focus is placed on a few executable measures to maximize the effectiveness of the needs assessment process;

(c) Compilation of technology and market information: collecting additional information about the priority sectors leads to better understanding of technological options and the decision-making process;

(d) Selection of priority technologies: based on the experience of the United Nations Industrial Development Organization, technology choices at this stage may be based on their suitability to local conditions, technical viability, economic/commercial viability, workability, adaptability, equitability and sustainability;

(e) In-depth technology and barrier assessment: the identified technologies are assessed in terms of cost implications, reliability and effectiveness in addressing climate objectives and in identifying potential barriers to development and dissemination;

(f) Definition of alternative actions: this process involves defining alternative actions to address key barriers based on the established criteria. Key decision-makers representing the Government, business and technical institutions are involved in this process;

(g) Selection of actions: meetings with various stakeholders are convened to identify a set of actions for every prioritized technology following the establishment of the criteria and in-depth assessments of technological options. The actions may include developing implementation plans and identifying key players;

(h) Preparation of a needs assessments report: the format and contents of the report may include a description of the process of setting the criteria, selecting priority technologies and proposed

implementation actions. It was noted that the reports should be investor-friendly and policy-relevant to ensure that follow-up actions are implemented.

17. It is important that, in every stage of the above-mentioned process, stakeholder participation and transparency in the process are assured to ensure active participation of different stakeholders, particularly in the implementation of the action plans.

18. The country and technical presentations showed that tools and methodologies are available for assessing technology choices, but developing countries and countries with economies in transition need assistance and training in their proper utilization.

19. The participants noted that technology transfer also takes place under the clean development mechanism (CDM) and in the context of regular private sector transactions. The added value of technology needs assessments is that the results can be used for the implementation of Article 4.5, the CDM and private sector investments.

D. Barriers to the implementation of technology needs assessments

20. The participants identified several barriers to the successful implementation of technology needs assessments, ranging from technical, policy and social to financial barriers. Based on the presentations and discussions, the following barriers to needs assessments were identified:

(a) Stakeholder participation: some of the barriers relating to stakeholder participation include addressing different stakeholder demands, the inability to identify relevant stakeholders and the limited technical background of stakeholders;

(b) Lack of trained national experts: the participants highlighted the need to build local capacity through training, seminars and regular exchange of experiences among experts at the national and international levels;

(c) Lack of coordination: insufficient coordination among national and international agencies and between the public and private sectors was cited as one of the barriers to effective needs assessments. The lack of coordination has affected the effective exchange of information and resources among the different agencies;

(d) Lack of institutional capacity: national institutions have limited capacity to respond to technology transfer concerns. In particular, the participants noted the inability of national institutions to provide the necessary support to identify and prioritize technologies;

(e) Limited access to information: most participants observed that the lack of access to information and databases on adaptation technologies, decision-making tools, methodologies, specific technologies, technical assistance programmes and possible funding opportunities poses a major challenge in assessing technology needs. This includes insufficient information on available resources and the market potential of different technologies;

(f) Availability of instruments and monitoring systems: in-depth analyses of technologies require instrumentation and monitoring systems, which are lacking in most developing countries and countries with economies in transition. Technical assistance from bilateral and multilateral institutions is necessary due to the high cost and difficulty of acquiring these instruments. Further assistance is also needed in training experts for continuous assessments of vulnerability to climate change;

(g) Over-proliferation of methodologies: the participants observed that over-proliferation of methodologies and non-flexibility in terms of utilization of current methodologies are also barriers to assessing technology needs. Countries may have to be selective in choosing from amongst the various tools and methodologies available and adapting these to their own national circumstances;

(h) Limited funding: most participants noted the lack of access to, or inadequate availability of, funds for conducting a comprehensive needs assessment. Funds are needed to hire and train experts, to access information and databases on various technologies and to acquire tools and instruments;

(i) Communicating the results: communicating the results to the policy makers and the key players such as the business sector and investors was seen as a challenge. To overcome this barrier, it is imperative that the end-users of needs assessments are properly identified at the outset of the project in order to be able to address their concerns.

E. Outcome of the working groups: conclusions and suggested possible next steps

21. The Chairman requested the participants in the three working groups to share and discuss their ideas on possible next steps with concrete recommendations to the SBSTA. Each working group addressed a similar set of issues and questions which had been raised during this meeting and at the previous regional workshops organized under the consultative process on technology transfer. The Chairman of the SBSTA requested the Vice-Chairman of the EGTT, Mr. William Kojo Agyemang-Bonsu (Ghana) to chair the final meeting on 25 April 2002.

22. The framework for action should clearly define the roles of governments and other key stakeholders in both developing and developed countries, including the roles of relevant intergovernmental organizations. The participants recognized that a successful technology needs assessment will encourage the participation of all stakeholders.

23. The various recommendations presented below are derived from the report of the three working groups and the discussions that followed the presentation of these reports to the plenary. The ideas regarding possible next steps are grouped together under the headings: recommendations for the SBSTA and recommendations for possible action by the secretariat and other relevant international organizations.

1. Recommendations for the SBSTA on methodologies for technology needs assessments

- There is no need to develop a new and common methodology for needs assessments since there is no single methodology that is appropriate for all countries. The participants acknowledged that, while existing methodologies each have their own advantages and disadvantages, they provide a useful framework for designing a needs assessment process;

- Improve the current methodologies to include adaptation technologies particularly in the areas of vulnerability assessments, monitoring and climate modelling, and tools for risk assessment;

- Encourage Parties to nominate experts to the UNFCCC roster of technical experts to increase the pool of experts that can be tapped to assist countries in conducting needs assessments;

- Request the GEF, and bilateral and multilateral organizations, to provide funding and technical assistance to developing countries and countries with economies in transition for training and implementation of technology needs assessments;

- Enhance access to technical and funding assistance by establishing a fund for training, conducting technology needs assessments and post-needs assessment work;

- Integrate the results of needs assessments into the national sustainable development planning processes, plans and programmes, such as national Agenda 21s, to ensure that they are relevant and consistent with national priorities;

- Improve coordination of efforts in providing financial and technical support for needs assessments, by linking needs assessment work to existing and planned donor programmes at the country level.

and by helping match proposed actions identified in the needs assessment process to possible sources of donor support;

- Developed country Parties are encouraged to provide financial and technical assistance to developing countries and countries with economies in transition for training, building the capacity of local experts, acquisition of instruments, conduct of technology needs assessments and implementation of follow-up actions;

- Developed country Parties should encourage private sector engagement in needs assessments and in the implementation of action by enlisting international businesses to partner developing country businesses in responding to climate technology market potential and projects and by creating the enabling environments conducive to technology transfer;

2. Recommendations for possible actions by the secretariat and other relevant international organizations

- The participants proposed that the UNFCCC secretariat and other relevant international organizations consider the follow-up activities outlined in this report and assist in making available information on capacity-building programmes, funding and other opportunities for training and seminars;

- The participants also proposed that, instead of using the existing available resources for the development of an in-depth practical approach to technology needs assessments, those resources can be used instead for training on the use of methodologies and tools at the national and regional level, including sharing of experiences among experts;

- The participants proposed requesting the UNFCCC secretariat and other intergovernmental organizations to compile manuals and develop a simple and user-friendly handbook on technology needs assessments that describes existing methods and provides policy makers and other stakeholders with additional references and information on these methodologies. The handbook should be flexible in responding to social, economic, policy and technological changes;

- Access to information is the key to success of needs assessments, and the participants proposed that measures be taken to reduce the gaps between information providers and users. The participants encouraged the UNFCCC secretariat and other intergovernmental and international organizations to widely disseminate information on tools, methodologies and various technologies through the web sites, publications and reports;

- Increase public awareness of climate change and climate technologies so as to invite various stakeholders to actively take part in needs assessments. This will also increase stakeholder ownership of the process so that they can be actively involved in the implementation of action plans;

- Improve access to information on tools and methodologies for needs assessments and information related to specific technologies by exploring other forms of delivery of information such as publications, reports and seminars, particularly in countries where access to electronic mail and the Internet are limited;

- Document the results of needs assessments in developing countries and countries with economies in transition and make this available through the web site and publications.